

In the claims:

1. (Currently amended) A method of causing light emission from carbon nanotubes, comprising causing one or more gases to be absorbed or adsorbed to the carbon nanotubes; and exposing the carbon nanotubes having one or more gases absorbed or adsorbed thereto to microwave irradiation in an inert gas chamber or a vacuum chamber, wherein the microwave irradiation causes light emission and desorption of the previously absorbed or adsorbed gases from the carbon nanotubes, and wherein the carbon nanotubes are nanotubes produced through the HiPco (High Partial Pressure of CO) process single-walled or multi-walled carbon nanotubes having greater than 90% purity.

2. (Currently amended) A method of causing mechanical motion of carbon nanotubes comprising causing one or more gases to be absorbed or adsorbed to the carbon nanotubes; and exposing the carbon nanotubes having one or more gases absorbed or adsorbed thereto to microwave irradiation in an inert gas chamber or a vacuum chamber, wherein the microwave irradiation causes mechanical motion of the carbon nanotubes and desorption of the previously absorbed or adsorbed gases from the carbon nanotubes, and wherein the carbon nanotubes are nanotubes produced through the HiPco (High Partial Pressure of CO) process single-walled or multi-walled carbon nanotubes having greater than 90% purity.

3. (Currently amended) A method of causing carbon nanotube reconstruction, comprising causing one or more gases to be absorbed or adsorbed to the carbon nanotubes; and exposing the carbon nanotubes having one or more gases absorbed or adsorbed thereto to microwave irradiation in an inert gas chamber or a vacuum chamber, wherein the microwave irradiation causes reconstruction of the carbon nanotubes and desorption of the previously absorbed or adsorbed gases from the carbon nanotubes, and wherein the carbon nanotubes are nanotubes produced through the HiPco (High Partial Pressure of CO) process single-walled or multi-walled carbon nanotubes having greater than 90% purity.

4. (Currently amended) A method of outgassing absorbed or adsorbed gases from carbon nanotubes, comprising causing one or more gases to be absorbed or adsorbed to the

carbon nanotubes; and exposing the carbon nanotubes having one or more gases absorbed or adsorbed thereto to microwave irradiation in an inert gas chamber or a vacuum chamber, wherein the microwave irradiation causes outgassing of the previously absorbed or adsorbed gases from the carbon nanotubes, and wherein the carbon nanotubes are nanotubes produced through the HiPco (High Partial Pressure of CO) process single-walled or multi-walled carbon nanotubes having greater than 90% purity.

5. Cancelled.

6. Cancelled.

7. Cancelled.

8. Cancelled.

9. (Previously presented) The method of Claim 1, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;
wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr; and
the microwave frequency is between 0.1 GHz and 100 GHz.

10. (Previously presented) The method of Claim 1, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;
wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr;
the microwave frequency is about 2.45 GHz; and
the microwave power is between 0.1 Watt and 1,500 Watts.

11. (Original) The method of Claim 4, wherein the microwave field incident upon the carbon nanotubes is about 1.01×10^{-5} eV.

Claims 12 – 38. (Cancelled).

39. (Previously presented) The method of Claim 1 wherein the carbon nanotubes comprise single-walled carbon nanotubes.

40. (Previously presented) The method of Claim 2 wherein the carbon nanotubes comprise single-walled carbon nanotubes.

41. (Previously presented) The method of Claim 3 wherein the carbon nanotubes comprise single-walled carbon nanotubes.

42. (Previously presented) The method of Claim 1 wherein the carbon nanotubes comprise multi-walled carbon nanotubes.

43. (Previously presented) The method of Claim 2 wherein the carbon nanotubes comprise multi-walled carbon nanotubes.

44. (Previously presented) The method of Claim 3 wherein the carbon nanotubes comprise multi-walled carbon nanotubes.

45. (Previously presented) The method of Claim 2, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;

wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr; and
the microwave frequency is between 0.1 GHz and 100 GHz.

46. (Previously presented) The method of Claim 3, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;

wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr; and
the microwave frequency is between 0.1 GHz and 100 GHz.

47. (Previously presented) The method of Claim 4, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;

wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr; and
the microwave frequency is between 0.1 GHz and 100 GHz.

48. (Previously presented) The method of Claim 2, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;

wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr;
the microwave frequency is about 2.45 GHz; and

the microwave power is between 0.1 Watt and 1,500 Watts.

49. (Previously presented) The method of Claim 3, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;

wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr;

the microwave frequency is about 2.45 GHz; and

the microwave power is between 0.1 Watt and 1,500 Watts.

50. (Previously presented) The method of Claim 4, wherein the carbon nanotubes are subjected to microwave irradiation while in a vacuum chamber;

wherein the vacuum is between approximately 10^{-4} torr and 10^{-8} torr;

the microwave frequency is about 2.45 GHz; and

the microwave power is between 0.1 Watt and 1,500 Watts.

51. (Previously presented) The method of Claim 1, wherein the microwave field incident upon the carbon nanotubes is about 1.01×10^{-5} eV.

52. (Previously presented) The method of Claim 2, wherein the microwave field incident upon the carbon nanotubes is about 1.01×10^{-5} eV.

53. (Previously presented) The method of Claim 4, wherein the microwave field incident upon the carbon nanotubes is about 1.01×10^{-5} eV.